IN THE CLAIMS:

1-26. **(Canceled).**

27. **(Currently Amended)** A method for the continuous, non-invasive measurement of blood pressure based on the principle of the unloaded arterial wall, ~~where~~ comprising

positioning a first and a second pressure cuff of identical or comparable size with a first and a second inflatable pressure measuring chamber on at least one first and one second ~~body part or body region~~neighboring finger, each containing an artery of identical or comparable size, ~~there is positioned a first and a second pressure cuff of identical or comparable size with a first and a second inflatable pressure measuring chamber~~,

~~the~~ controlling pressure in the first pressure measuring chamber ~~being controlled~~ in dependence ~~of the~~ on a measurement signal of a plethysmographic sensor device in such a way that ~~the~~ an amplitude of the plethysmographic measurement signal is minimized,

~~and~~ obtaining a pressure measuring signal ~~being obtained~~ from the first pressure measurement chamber,

~~wherein~~ operating the second pressure measuring chamber ~~is operated~~ as a reference pressure chamber independently of the first pressure measuring chamber, and

~~wherein~~ controlling the pressure in the reference pressure chamber ~~is controlled~~ in dependence on a measurement signal of a second

plethysmographic sensor device and in accordance with a preselectable pressure function, a reference signal being obtained simultaneously with the pressure measuring signal, and the reference signal ~~is~~ used in the interpretation of the pressure measuring signal.

28. **(Currently Amended)** Method according to claim 27, ~~wherein the~~ comprising continuously monitoring and/or adjusting a setpoint of the pressure measuring signal ~~is continuously monitored and/or adjusted~~ by means of the reference signal.

29. **(Cancel)**

30. **(Currently Amended)** Method according to claim 29, ~~wherein~~ comprising controlling the pressure in the reference pressure chamber ~~is controlled~~ in accordance with the preselectable pressure function and simultaneously with the help of the plethysmographically obtained reference signal in such a way that the amplitude of the reference signal is minimized while a reference pressure signal is measured, and ~~wherein~~ analyzing the reference pressure signal, measured at various pre-selectable pressure values of the pressure function, ~~is analysed,~~ compared to predetermined ideal pulse curves, and - when the deviation from a given pulse curve is at a minimum -- determining the setpoint for the pressure measuring signal ~~is determined~~ therefrom.

31. **(Currently Amended)** Method according to claim 27, ~~wherein~~ comprising inferring a physiological or pathological change of the

pressure measuring signal ~~is inferred~~ from a change of the mean pressure and/or the amplitude of the pressure measuring signal and a shift of the amplitude maximum of the reference signal or the reference pressure signal in the same direction.

32. **(Currently Amended)** Method according to claim 27, ~~wherein~~ comprising inferring a loss of setpoint of the pressure signal ~~is inferred~~ from a change of the mean pressure and/or the amplitude of the pressure measuring signal and an absent or oppositely directed shift of the amplitude maximum of the reference signal or the reference pressure signal.

33. **(Previously Presented)** Method according to claim 27, wherein at preselectable time intervals or triggered by loss of setpoint the reference pressure chamber is operated as pressure measuring chamber and the pressure measuring chamber as reference pressure chamber.

34. **(Cancel**

35. **(Currently Amended)** A device for the continuous, non-invasive measurement of blood pressure based on the principle of the unloaded arterial wall, ~~with~~ comprising at least one first and one second pressure cuff of identical or comparable size~~, which are attached~~ for attachment on at least one first and one second ~~body part or body region~~ neighboring finger containing an artery of identical or comparable size, each pressure cuff having an inflatable pressure measuring chamber, the first pressure cuff being provided with a first plethysmographic sensor

device connected to a controlling and adjusting device[[,]] which controls the pressure in the first pressure measuring chamber using the measuring signal of the plethysmographic sensor device, and where the pressure measuring chamber is connected to a pressure sensor to obtain a pressure measuring signal, wherein the pressure measuring chamber of the second pressure cuff is configured as a reference pressure chamber, which is controlled simultaneously with and independently of the pressure measuring chamber of the first pressure cuff, wherein the second pressure cuff is provided with a second plethysmographic sensor device, and wherein the pressure measuring chamber of the first pressure cuff and the reference pressure chamber of the second pressure cuff each have separate inlet valves and outlet valves, with the pressure in the reference pressure chamber being controlled via the controlling and adjusting device in accordance with a preselectable pressure function.

36. **(Cancel)**

37. **(Previously Presented)** Device according to claim 35, wherein the separate inlet and outlet valves of the pressure measuring chamber and the reference pressure chamber are placed in separate pressure control chambers, which are each connected by separate pressure lines to the pressure measuring chamber and the reference pressure chamber and via the inlet valves to a common pressure source.

38. **(Previously Presented)** Device according of claim 35, wherein a heating unit is integrated in or appended to the two pressure cuffs, which heating unit is provided with at least one heating element, preferably a heating foil or a heating spiral.

39. **(Previously Presented)** Device according to claim 35, wherein at least one sensor is provided at a location distal to the pressure measuring chamber and the reference pressure chamber for measuring a volume change of said body part.

40. **(Currently Amended)** Device according to claim 39, wherein at least one of an impedance sensor, a strain ~~gauges and/or~~ gauge and an additional plethysmographic sensor is positioned at ~~the~~ a distal end of a finger.